

Application No.: 10/523228  
Docket No.: CL2099USPCT

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### REMARKS

#### I.

The specification for this application has been amended to insert priority information and Claim 2 has been amended to delete an extraneous period. As discussed further below, claims 4, 5, 6, 9, 10, 11 and 14 have also been amended. New Claim 15 has been added to address embodiments of the method of Claim 11 wherein a mixture comprising co-precipitated solid and ammonium nitrate from (a) is dried and calcined (see e.g., page 6, line 36 to page 7, line 2). New Claim 16 and new Claim 17 have been added to address embodiments of the method of Claim 15 and Claim 11 respectively wherein the dried solid is calcined in air (see e.g., page 7, line 25).

#### II.

In the Office Action, Claims 4-10 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Office Action indicated that Claims 4 through 10 are indefinite for lacking positive recitation of process steps, conditions or parameters defining the processes claimed therein; and noted as an example that the term "using" in claim 4 does not clearly define the claimed process.

Applicants have now amended Claim 4 to recite the positive process step of bringing said hydrocarbon or a halogenated hydrocarbon into the presence of a catalyst composition as further recited in the claim.

Claims 5, 6, 9 and 10 have been amended to reference Claim 1 rather than Claim 4. Claims 5, 6 and 10 now recite the positive process step of reacting, while Claim 9 now recites the positive process step of dehydrofluorinating.

Applicant submit that claims 4-10 now distinctly claim methods of using the indicated catalyst compositions.

#### III.

In The Office Action, Claim 14 was also rejected under 35 U.S.C. 112, second paragraph. The Office Action indicated that Claim 14 lacked antecedent basis for the phrase "more than three moles of ammonium nitrate per mole of chromium" and for the limitation "ammonium nitrate" itself. The Office Action suggested that while Claim 12 (from which Claim 14 depends) recited limitations of "at least three moles of nitrate" and "at least three moles of ammonium", it cannot be determined whether the limitations of Claim 14 are to further define either of these limitations.

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Applicants note that although ammonium hydroxide is added in (a) of Claim 11, the aqueous solution to which it is added contains nitrate. The Examiner is respectfully referred to page 6 of the present application (see e.g., lines 23-25). Applicants submit that inasmuch as Claim 14 represents an additional limitation (i.e., one involving excess ammonium nitrate, which may be added to the solution before, during or after the co-precipitation) no antecedent basis for it is required. Claim 14 has also now been amended to depend from Claim 13.

#### IV.

In the Office Action, Claims 1 through 14 were provisionally rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 10/523,226.

Applicants note that the claims of copending Application No. 10/523,226 involve *inter alia* nickel substitution in alpha-chromium oxide lattice. Applicants submit that although there may also be trivalent cobalt substitution, the nickel substitution aspect represents a distinction from the limitations recited for the present claims. Moreover, Applicants note that Claim 1 of the present application requires at least about 0.05 atom % of the chromium in the alpha-chromium oxide lattice to be replaced by trivalent cobalt atoms, whereas the claims of copending Application No. 10/523,226 do not. In any event, Applicants submit that even assuming *arguendo* that this provisional rejection is appropriate, passing this application to allowance should be considered (if this application is otherwise in condition for allowance) in view of its advanced prosecution stage compared to copending Application No. 10/523,226 (see MPEP 804 I. B.)

With regard to other applications listed in Applicants' Information Disclosure Statement, Applicants note that Application No. 10/523,227 (previously copending) has issued as U.S. Patent No. 7,074,973 and that copending Application No. 10/523,223 has been allowed (and the issue fee has been paid).

#### V.

In the Office Action, Claims 1-6 were rejected as anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 5,177,273 to Bruhnke et al. The Office Action indicated that Bruhnke et al. teaches a catalyst consisting essentially of chromium oxide, which is combined with a refractory oxide, fluorinated and/or modified with, for example, cobalt; and that the catalyst may be used in the production of halo hydrocarbons via reaction of reactants such as propane, propylene, and halogenated acyclic three-carbon hydrocarbons with at least a stoichiometric amount of chlorine and hydrogen fluoride in the vapor phase in the presence of the catalyst.

Applicants note the disclosure of modified chromium preparations at column 3, lines 18-37 in Bruhnke et al. Applicants submit that in contrast to simply using a solution of metal

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modifier to modify a chromium oxide, the present claims involve crystalline alpha-chromium oxide where the chromium atoms in the alpha-chromium oxide lattice are replaced by trivalent cobalt atoms. Applicants submit that Bruhnke et al. does not disclose or suggest the replacement of chromium atoms in the alpha-chromium oxide lattice by trivalent cobalt atoms.

#### VI.

In the Office Action, Claims 11-14 were rejected as unpatentably obvious under 35 U.S.C. 103(a) in light of U.S. Patent No. 5,494,873 to Tsuji et al. The Office Action indicated that Tsuji et al. (a) teaches a method for producing a chromium-based fluorination catalyst in which chromium hydroxide is prepared by precipitation of a chromium salt (e.g., nitrate) with an alkali metal (e.g., ammonia), followed by firing in the presence of H<sub>2</sub> or of an inert gas (col. 3, line 66 – col. 4, line 39 were noted) (b) discloses that it is feasible to perform this process with chromium hydroxide and another metal (e.g., cobalt) in the form of metal hydroxides and/or salts (col. 5, lines 15-47 were noted); and (c) states that the addition of the element can be achieved by a method in which a salt of the intended element is added to an aqueous Cr salt solution in a predetermined amount during preparing a chromium oxide by the precipitation process, by a method in which the chromium hydroxide is impregnated with an aqueous solution of a salt of the intended element, .... The Office Action suggested that from this one of ordinary skill in the art would reasonably expect to employ cobalt salts such as cobalt nitrates (or an divalent cobalt salt) to obtain a desired “cobalt-substituted chromium oxide.”


Applicants note that the method of Claim 11 relates to preparing a composition comprising the crystalline cobalt-substituted alpha-chromium oxide of Claim 1 (emphasis added). In connection with the Claim 1 aspects, Applicants submit that Tsuji et al. does not disclose or suggest the replacement of chromium atoms in the alpha-chromium oxide lattice by trivalent cobalt atoms. Moreover, Applicants note that (d) of Claim 11 has now been amended to recite “calcining the dried solid in the presence of oxygen” (see page 7, line 24).

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In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



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